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ABSTRACT

This paper aligns with educators and historians who argue that certain aspects of expert historical thinking are excellent tools for democratic citizenship. The paper focuses on specifically contextualized understanding of the past, as opposed to presentist attitudes, which assume the past is just like the present. It presents a framework for analyzing contextualized historical thinking about events in terms of consideration of location, the perspectives of participants, placement within the flow of time, an understanding of the cultural tools and norms of the period, and the overall climate of opinion. Based on these elements, as well as other hallmarks of educational tasks in history, the paper sketches a task analysis, based on cognitive and sociocultural approaches to mind, of a number of activity structures commonly used in history instruction and some newer computer-based activities. It relates the task analysis to an empirical study from an intervention and study of children creating a hypermedia simulation of travel on the Underground Railroad. Appended are Web page screens created by participants and source materials used. (Contains 26 references, 1 table, and 2 figures.) (Author/BT)



Re-Creating the Past:

Building Historical Simulations with Hypermedia to Learn History

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Abstract

In this paper, I side with educators and historians who argue that certain aspects of expert historical thinking are excellent tools for democratic citizenship. Specifically, I focus on "contextualized" understanding of the past, as opposed to "presentist" attitudes which assume the past is "just like the present." I present a framework for analyzing contextualized historical thinking about events in terms of consideration of location, the perspectives of participants, placement within the flow of time, an understanding of the cultural tools and norms of the period, and the overall climate of opinion. Based on these elements as well as other hallmarks of educational tasks in history, I sketch a task analysis, based on cognitive and sociocultural approaches to mind, of a number of activity structures commonly used in history instruction and some newer computer-based activities. Finally, I relate the task analysis to an empirical study from an intervention and study of children creating a hypermedia simulation of travel on the Underground Railroad.



Re-Creating the Past: Building Historical Simulations with Hypermedia to Learn History

Introduction

Increasing numbers of today's children are becoming familiar with using computer-based tools for doing history-related activities. Some children have used custom hypermedia libraries of diverse source document to conduct historical inquiries (e.g., Ayers, 1993; Britt, Rouet & Perfetti,1996), and increasing numbers are conducting "WebQuests" (Dodge, 1995) involving Internet searches to enable some understanding of historical events ranging from the Civil War to Thanksgiving. Perhaps more than any other technology activity related to history, children have engaged in "edutainment" games that are hypermedia simulations of history such as the enormously popular *Oregon Trail*. In *Oregon Trail*, children play the role of settlers traveling west on the trail, making decisions, trying to survive, and dealing with the many circumstances that arise. Although these activities present various possibilities for learning history in a different way, challenging children to *construct* hypermedia simulations based on history requires a different sort of consideration of the past.

In this paper, I attempt to clarify some issues in fostering historical thinking among history learners, particularly as it relates to contextualized thinking. I present a framework for contextualized historical thinking and action, and use the framework for a task analysis of various history learning activities. Finally, I relate the task analysis to an empirical study from an intervention and study of children creating a hypermedia simulation of travel on the Underground Railroad. My approach is based on cognitive (e.g., Bruer, 1993; Carretero & Voss, 1994) and sociocultural studies of mind (e.g., Wertsch, 1991, 1998).

Towards a Framework of Contextualized Historical Thinking

Octavia Butler's (1979) novel *Kindred* has some interesting lessons for what it means to think historically. Butler tells the tale of an African American woman living in the 1970s, who is transported back in time to her ancestors' lives in Maryland during the early 1800s. The protagonist at first finds it difficult to understand how both whites who owned slaves and blacks who were enslaved could function within the institution of



slavery. Throughout the novel, the woman gradually begins to understand some of the small and large daily events, compromises, and bargains that enable slavery to be practiced. In a way, the protagonist, and along with her the readers of the novel, may perhaps begin to see how slavery in the United States "made sense" to those within it, while still maintaining a sense of moral outrage at its practice.

Like Butler's protagonist, one of the issues history educators face is "presentism", or the tendency to assume that the past was in overly simplistic ways "just like the present" (e.g., Wineburg, 2001). From our present point of view, for instance, it is difficult to understand how thoughtful, freedom-loving Americans could possibly support institutions and policies such as slavery, Jim Crow laws, or denying women the right to vote. Learners often wonder "why didn't they just get it?", without appreciating the context which made conclusions different from one's own possible and meaningful. Thus, a critical aspect of good historical analysis is understanding the historical context that made realities different from our own present possible. Since history educators do not have the luxury of using time travel as Butler did to transport learners to different historical contexts, we must find other means of fostering deep understanding of history.

But history educators should not merely be seeking to enable learners to dispassionately conceptualize and recount elements of historical contexts that constitute historical events. Expert historians position themselves toward events of the past either explicitly or implicitly, and their position *from the present* is part and parcel of the accounts historians create. Like Butler's protagonist, we want learners to be able to express value laden yet reasoned points of view about the past, and we want them to appreciate some of the multiple perspectives possible on any given set of events (Holt, 1990, Levstik & Barton, 1997).

Wineburg (1999) has argued that historically contextualizing how certain universals such as the struggle for freedom play out in different eras and locations is a worthwhile activity. *Historical* contextualizing is worthwhile because it can teach us how to do the kind of *social and cultural* contextualizing that can enable us to live in our present world's diversity. Understanding the way the constants of the human condition such as freedom and oppression play out in one context can teach us about how it can play out in other contexts, including some of today's. At the same time, staking out a



nuanced position toward historical events, while seeking to appreciate different contexts and understand different points of view, provides tools for learners to use as engaged citizens in a democracy.

Given the importance of contextualized historical thinking, I propose a framework of elements which may characterize it, based on the literature regarding expert historians (e.g., Bruer, 1993; Spoehr, 1994; Wineburg, 2001) as well as sociocultural theory (Wertsch, 1998). In this view, contextualizing historic events involves:

- Location
- Perspectives of participants, which may differ in terms of
 - o personal history
 - o beliefs
 - o knowledge and information
 - purposes and motives
 - o possible and made choices
- Place within a time flow (what came before and what came after, including but not limited to cause and effect)
- Cultural tools and norms of the period, including linguistic norms and patterns of action (e.g., genres), and the physical tools along with their common uses in the period
- Climate of opinion or Zeitgeist of the period

A description of each of the above elements is included in the next section.

An Analysis of History Learning Activities

In this section, I present a partial analysis of the affordances and constraints of several genres of educational history activities, with an emphasis on contextualized historical thinking, and a few other salient historical subtasks. My analysis is similar to task analyses in the cognitive sciences, where researchers break down the elements of thought and action that experts exhibit in performance on a task (e.g., Bruer, 1993, Katz, Lesgold, Eggan, & Gordin, 1993), with consideration of how the task "affords" or "constrains" each aspect of expertise. The concepts of "affordance" and "constraint"



derive from J. J. Gibson's (1986) work on perception, which Donald Norman (1988) has applied to the design of objects, and James Wertsch's (1998) has applied to the uses of cultural tools in action. To name a few examples, chairs afford sitting, buttons afford pushing, and certain specialized language terms afford making distinctions not possible in everyday speech (e.g., to most of us, a sail on a boat is just that, but experts have many different names for the different types). Conversely, buttons with two settings constrain us from picking something in between, and categorical terms like "alive" and "dead" may constrain us from making shaded distinctions between the two. Although "constrain" is a negative sounding term, it is important to remember that some constraints can be helpful in terms of providing limits, as in the case of helpful time constraints and scaffolding of possible conceptual categories for learners in an educational activity. For this analysis, I am concerned with two kinds of affordance: when activities require a form of historical thinking, and when activities *enable* but do not necessarily require that kind of thinking. And for this analysis, I am concerned with only one kind of constraint: when activities disable a kind of thinking because they are beyond their scope¹. This analysis is summarized in Table 1, where each column represents an element of expert historical thinking and each row details how an educational activity affords or constrains participants in the activity from carrying out each element. The elements of the table are described below.

More expert historical understanding could be characterized as including the five contextual factors (adapted from Wineburg, 2001, pp. 90-91) included in Table 1. One would consider the *location* of the event, including what has happened before there, and the kinds of events that typically took place in that or related locations. One would also consider the *perspectives of participants* in the event, including their personal histories, their beliefs, their knowledge as it relates to the events, and the particular information they were cognizant of (which might be very different for different participants. Further, the participants' purposes and motives for their actions, as well as the choices they saw before themselves for action, as well as the particular choices they made according to the



¹ Clearly, these three categories themselves have limitations. Specifically, they enable only a rough characterization of each of these dimensions. If each dimension is imagined as a continuum ranging from disabling to enabling to requiring, they represent three points along that continuum. This analysis provides

records. possible and made choices. One would consider the events within a flow of time including preceding events that may have led to the event at hand as well as affected the interpretation of the event by participants, and subsequent events. One would consider the cultural tools available to and used by participants, as well as the norms for the use of those tools. One would consider the overall Zeitgeist or climate of opinion about people and activities like the one at hand for the time period.

In addition to these aspects of contextualized historical thinking, good historical analysis can include the six subtasks included in Table 1. These include *information gathering*, obtained by searching, skimming, reading, questioning, viewing and/or listening. Historical thinking involves *interpretation* of the meaning of the relevant information on its own and in relation to other information and knowledge of the interpreter. It also may involve *synthesis* of multiple threads, events, and themes. At times, especially in school, it can involve *recall memorization* of aspects of the situation, which may be particularly helpful and necessary for the kinds of individual assessments by which students and their teachers are judged. Building a sound historical interpretation often involves making *judgments about various sources*, including such aspects as the *motives* of the recorder or author, as well as the intended *audience*. Oftentimes, it can include explicit efforts to identify the *evidence to justify the interpretation* one is developing, based on the source material, existing theories, or other interpretations. Other aspects of particular activities are noted in the "Other" column of Table 1.



only a first pass at the use of this framework, which I hope provides some analytic purchase even at this granularity.

	S							=				
JəthO	Preparation for high-stakes exams	Written communication	Written communication	Written communication	Verbal communication	Kinesthetic skill, mathematics		Written/visual communication, procedural thinking		Written / visual communication,	hypermedia links	
Evidence to justify interpretation	۵	ш	Э	ш	ш	۵	ш	Ш	~	ш		D = Disables
Source judgment (e.g., motives)	Ω	ш	R	œ	ш	Ω	ш	8	2	ш] = Q
Recall memorization	~	R	ш	w	R	Е	Ш	ш	ш	ш		
Synthesis	Ω	Е	R	~	Ш	D	ш	R	R	Ш		
Interpretation	ш	ш	α.	ď	8	Ш	ш	X	ď	α		
Info gathering	ч	R	Ω.	<u>ح</u>	R	R	R	R	2	8		Enables
Zeitgeist	ш	ш	Ш	ш	Ш	Е	Ш	Ш	ď	ш		= Ene
bns sloot lantluD emion	Ш	ш	ш	ш	Ш	ш	Ш	ш	~	ш		ш
woll əmiT	Ω	Ш	<u>د</u>	œ	R	Ξ	Ш	<u>د</u>	œ	œ		
Participant Perspective	۵	ш	ш	œ	R	ď	Ш	ш	ш	œ		Requires
Location	ш	Ш	ш	ш	Я	R	ш	ш	œ	œ		Ш
	Factual multiple choice	Essay/short answer	Constructing 3rd person historical narratives	Constructing first person historical narratives	Role playing	Playing Oregon Trail	WebQuests	Building StarLOGO animated narratives	Sourcer's Apprentice	Building branching hypermedia	simulation	8

Table 1: Historical thinking affordances and constraints of selected educational tasks



Using the elements outlined above, it is possible to see important differences in the affordances and constraints of some traditional history education activity structures. For instance, traditional fact-based multiple choice exams require that learners have gathered information and memorized it before beginning, but because they usually espouse one "factual" interpretation of events, they tend to disable, or at least make it difficult to carry out, consideration of participant perspectives, consideration of time flow issues except simple dates and cause-effect statements, and synthesis by the learner. Issues of location, cultural tools and norms, the zeitgeist, and interpretation are enabled by the structure of fact-based multiple choice, but not required by it. The essay or short answer response either in an exam or in response to a reading is sufficiently underdetermined in its general form as to its content as to enable almost any aspect of historical thinking, depending on the formulation of the specific question, but to require none except information gathering and recall memorization. Constructing third person or first person narratives both require information gathering, interpretation, synthesis, and judgment of sources, as well as the time flow at least in terms of narrative emplotment (Bruner, 1990; Wertsch, 1998) of beginnings, middles, and ends. The major difference between the structure of a first person and a third person narrative is that the former requires the consideration of at least one participant's perspective, whereas the latter enables it. Both these narrative construction tasks, in their simplest forms, merely enable consideration of cultural tools and norms and the zeitgeist, as well as doing memorization and justifying interpretations based on evidence. On the latter point, just as professional historians footnote to accomplish justifications of their interpretations, so could students be required to for such narratives. Finally, role playing activities in which learners act out, sometimes using scripts they create themselves, events such as the Constitutional Convention, require several aspects of contextual thinking, including consideration of location, participant perspective, and flow of time, while they enable others, such as consideration of cultural tools and norms and the zeitgeist. Role playing also requires interpretation and recall memorization, but enables the other subtasks.

Turning now to computer-enhanced history learning activities, the framework in Table 1 also allows us to see important distinctions in the task. Simply *playing a historic*



simulation such as Oregon Trail requires some contextual thinking such as consideration of location and participant perspectives (much like a role play), as well as the need to perform information gathering. But Oregon Trail suffers from some limitations inherent in the medium of real-time or time-lapse simulations. Since such simulations can be navigated relatively unreflectively, moment-to-moment, learners need not consider timeflow factors. They may consider such factors, just as they are enabled to consider cultural tools and norms and the zeitgeist. Because the historic sources are hidden from users of the programs, learners are disabled from doing much synthesis, judgment of sources, or justification of interpretations based on evidence. Like essays and short answers, the WebQuest activity structure (Dodge, 1995) is sufficiently underdetermined in terms of specific historical thinking aspects that it enables everything and requires nothing in general except information gathering—one would have to analyze each specific WebQuest according to these historical thinking criteria for useful distinctions. Paula Hooper (e.g., 1996) has conducted constructionist (e.g. Harel & Papert, 1993) activities in which students use StarLOGO (a version of the LOGO procedural programming language) to build animated narratives. These activities share most of the properties of traditional third or first person narratives outlined above, with the addition of visual communication and procedural thinking. Britt, Rouet & Perfetti (1996) developed a cognitive tool they called the Sourcer's Apprentice, which requires most of the aspects of historical thinking detailed above. Learners using this computer-based system make use of a set of historic source documents, for instance about labor strife in mining, to create a warranted interpretation of events. The only two aspects of the framework the Sourcer's Apprentice does not appear to require, but certainly enables, are consideration of the differing perspectives of participants in the event, and a strong requirement for recall memorization.

The final activity structure is a new format developed by the author, and implemented in an after school club. Like Hooper's animated narratives, it incorporates elements of constructionism, and it takes advantage of youth's growing familiarity with history simulations like *Oregon Trail*. The youth were challenged to recreate some of the decisions and possibilities African-Americans who attempted to escape from slavery in 1850s United States would face, in the form of their own simulation game like *Oregon*



Trail. Specifically, they would do so by creating game screens, each of which was a web page, that included branching choices for the game player. The youth were asked to base their designs of the branching choice web pages on actual historical patterns and events, as documented by source materials gathered by the author relating to elements of escapes from slavery in the U.S. These included river crossing, acquiring food, choosing a mode of transportation (train, riverboat, wagon, foot), the North Star, and symbols used on the underground railroad (lanterns, sheets, pies cooling on the windowsill). Each of the seven youth chose one of these topics, received a folder of source materials, and worked with adult guidance to design web pages on paper and then on the computer. In the end the set of linked pages created a web that could be traversed by visitors to a website. Further details on the activity are provided below, but a first pass task analysis of the overall activity structure looks much like that for role playing activities: it requires several aspects of contextual thinking, including consideration of location, participant perspective, and flow of time, while it enables others, such as consideration of cultural tools and norms and the zeitgeist. It also requires interpretation, but enables without requiring the other historical thinking subtasks.

Research Context, Participants, and Methods

The empirical study on building historical hypermedia simulations was conducted within one part of a series of after school clubs on the history of resistance to slavery in the United States led by the author in the Spring of 1998. The youth participants were seven children, ranging in age from 10 years old to 13, recruited with a flyer distributed in their classes at an urban elementary school and participating voluntarily. The participants included academically successful and unsuccessful youth, and was economically and ethnically diverse like the community in which the school was situated (predominantly African-American and European-American, plus one Caribbean-American). The club met in the school's library, which was equipped with 6 Macintosh computers and the web browsing and editing program Netscape Gold (version 3.1). Five undergraduate university students participating in an education course entitled "Informal Learning Environments" assisted the youth. The group met for approximately 1.5 hours of work time, plus snack time, once a week for eight weeks during the semester. During



breaks of the first few weeks of the after school clubs, the youth had played *Oregon Trail*. Over the course of the last five weeks, the youth with adult guidance created a set of individual screens linked in a hypermedia web which could be traversed in multiple ways to recreate the series of events that *could have* happened on any one attempt to escape slavery.

The data sources for the research are field notes, videotapes, artifacts, and interviews from the after school history clubs directed by the author. The method used is interpretive case study, and the theoretical approach is a sociocultural one that endeavors to take into account the "irreducible tension" (Wertsch, 1998) between the individual and the cultural (neither individual goals nor cultural patterns are deterministic of the course or meaning of action). In this approach, my analysis focuses on person(s) acting purposefully with cultural tools in interpreted contexts.

Building Hypermedia Historical Simulations

During the first week of the simulation building, each of the seven youth chose from a set of nine source document folders relating to constituent aspects of travel on the Underground Railroad. The aspects or topics selected included

- disguises
- river crossing
- boat travel
- slave catchers/bounty hunters
- the North Star
- safe houses and
- hiding/shelter/food.

With the help of the undergraduate students and the author, the youth then planned a set of game screens in pencil on large yellow index cards. For instance, Bobby (all children's names are pseudonyms) chose the topic of river crossing. As reported elsewhere (Polman, 2001), he planned a set of screens with the choices and branches represented in Figure 1. He and the undergraduate student based the set of choices on the source set of documents included in the folder including *The Autobiography of John P. Parker* (who crossed the Ohio River to escape slavery), a 1997 newspaper story about slaves' river crossing from



Missouri to Godfrey Illinois, a portion of the narrative of William Wells Brown, the portion of Harriet Beecher Stowe's *Uncle Tom's Cabin* that includes the crossing of the Ohio by ice, and a portion of the autobiography of the Reverend Josiah Henson, retelling the reminiscences of Levi Coffin from which Stowe derived the fictional ice crossing account.

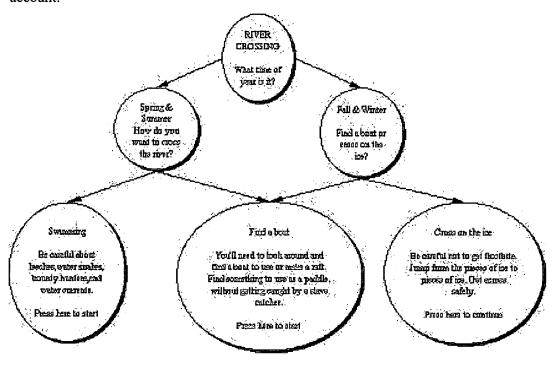


Figure 1: Web of screens on river crossing created by Bobby

After they planned their screens on paper, youth worked with the undergraduates to create web pages using a simple, free web editor from Netscape. Overall, the youth created 24 web pages (ranging from one by three youth to 8 by one youth), and when they were near completion I worked with them to stitch the pages together across topics., creating a few pages to fill in necessary gaps. In the end, the topics and links across the pages was represented on the "clickable map" shown in Figure 2. For a complete listing of the content of all pages created by the youth, and a description of the source documents used by each, see Appendix A.



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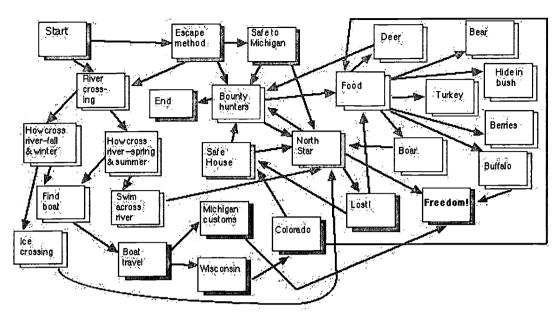


Figure 2: Clickable map of simulation screens made by youth (each color represents screens made by one youth, with purple screens made by the author at the end)

To better understand the product, I will walk you through one path of the simulation. You begin at a screen which reads:

Imagine you are a slave living in Missouri during the 1850s. Like William Wells Brown or Elizabeth Keckley, you may dream of freedom. But how will you reach it?

Despite the risk of punishment, you may choose to embark on a journey toward freedom. That journey could be on what some call "the trackless train" [image of a running figure]

Next, you see a screen giving you text choices and images to "Choose how you would like to escape": on foot, by train, by disguise, or by wagon. If you choose on foot, you see a screen which says:

RIVER CROSSING
What time of year is it?
Spring & Summer Fall & Winter²



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² As is the convention on web pages, I indicate hyperlinks with underlined text in these quotes.

You choose Spring & Summer, and see a screen which says:

How do you want to cross the river?

#1Find a boat to cross the river. Get across the river before the bounty hunters capture you. Find something to get you over as fast as you can.

OR

#2 Swimming across as fast as you can without being caught

Next, a screen says

Find a boat

You'll need to look around and find a boat to use or make a raft. Find something to use as a paddle, without getting caught by a slave catcher Press here to start

Followed by one made by another youth about boat travel:

BOAT TRAVEL

<u>Do you want to go all the way up the Mississippi River?</u> OR <u>Do you want to go a ways up the Mississippi then through the Osage River?</u> Click the question for that choice

You choose to go up the Mississippi, which leads to

You've reached Wisconsin & slave catchers have found out you're aboard the boat.

Do you want to hide in a crate? OR

Do you want to hide on the lower deck?

Click the question for that choice

You choose to hide in a crate, which leads to

You've reached Colorado, but you've run out of food.

Do you want to:

search for food? OR

steal a wagon & ride to a safe house?

click on the question for that choice

You choose to steal a wagon and ride to a safe house, which leads to a screen which has a picture of two houses next to each other. One of the houses has no distinguishing features, and the other has a lawn jockey. The text says:

You have reached an area where there is a safe house Which is it? (click on your choice)



You correctly identify the safe house, and reach a screen with a drawing of a town and a starry sky. In the night sky you can identity the big dipper and the North Star, if you know how. The text reads:

You have reached a town. You can either

1) Follow the North Star, or 2) Take the road (left) or 3) Go right. Click on the area in the picture where you want to go. Before choosing, you may want to find out about the North Star.

You correctly follow the North Star to the right by clicking on that side of the picture, and you reach a screen showing a photo of Josiah Henson's home in Canada. It says "You made it! Good luck on your life in Canada."

In the previous section on "An Analysis of History Learning Activities", I evaluated the design of the various activities from an abstract structural standpoint. But like all educational activities, an evaluation of the *enacted* design or design in use (Allen, 1993) is necessary to have a more complete understanding of an activity's actual and possible implications. Thus, I now return to the frameworks of contextualized and other aspects of historical thinking detailed above, looking for evidence of contextual and other historical thinking in the work done by the youth and their adult facilitators. Several of the youth ended up considering the context in terms of *location*, specifically by considering the ways that the river, rails, and wagon travel had been used in Missouri and elsewhere on pathways to freedom. The one youth who chose to take the river traveler from Wisconsin to Colorado, on the way to Canada, created an historically implausible sequence of events, however. The youths who made the screen on the North Star and the screen about the safe house had to consider the knowledge the would-be escapee would need to have about locating and using the North Star or the "drinking gourd" north, and about the symbols commonly used to identify safe houses. All of the youths when deciding on branching choices for their game screens had to consider the possible choices from the perspectives of the participants in the historic events. The motives of the escaping slaves were relatively clear, and their were only oblique references to personal history and beliefs. Obviously, each child had to consider their screens in terms of a time flow. Several of the youth had to consider the cultural tools of the period, including the aforementioned symbols and navigational aids. At least one youth failed to consider some



of the important norms and tools commonly at the escaping slaves' disposal, however, when he created situations in which they killed buffaloes and bears. This could be an overgeneralization of the hunting sequences that particular youth and several others enjoyed in the Oregon Trail game, not based on any historical source documents. The climate of opinion or zeitgeist of the period was present in a minor fashion in the need to travel by disguise, even in the North, and in the presence of bounty hunters. The mere presence of these features is far from adequate to create a nuanced understanding of the zeitgeist, however.

If we look at the overall product of the youths' work, we see plenty of evidence of the remaining historical thinking subtasks, likewise. All of the youth gathered and interpreted textual information from the source materials. The youth who constructed the screens on river crossing synthesized aspects of several first-person accounts into a series of choices that individuals might face. There is no evidence of recall memorization, judging the audience or motives of sources, or making explicit the evidence the youth used to justify their interpretations of the past. The latter two points could be added to the structure of the activity and technology by requiring links justifying and explaining the reasoning behind each simulation screen.

Future Directions and Conclusion

In order to further explore the possibilities of learning by building hypermedia historic simulations, I propose building tools customized for making historic simulations, referencing sources, and providing justification for choices made. More detailed thinkaloud protocols than those possible in the reported research context could be carried out in laboratory studies with such tools (see, e.g., Bruer, 1993), followed by classroombased or after school-based interventions, to further reveal the cognition and learning potential of this new activity structure. The framework presented above for breaking down sophisticated contextualized historical thinking in terms of location, participant perspective, time flow, cultural tools and norms, and zeitgeist offers promise in analyzing the value of history learning activities for educating future generations of good historical thinkers and informed democratic citizens.



References

- Ayers, E. L. (1993). The valley of the shadow: Living the Civil War in Pennsylvania and Virginia. http://jefferson.village.virginia.edu/vshadow/vshadow1.html (accessed 7/30/01).
- Blockson, C. (1994). "The Ballad of the Underground Railroad". In C. L. Blockson, *Hippocrene guide to the underground railroad*, p. 345. New York: Hippocrene Books.
- Britt, M. A., Rouet, J.-F., & Perfetti, C. A. (1996). Using hypertext to study and reason about historical evidence. In J.-F. Rouet, Levonen, J. J., Dillon, A. P., & Spiro, R. J. (Ed.), *Hypertext and cognition* (pp. 43-72). Mahwah, NJ: Erlbaum Associates.

Brown, W. W.

- Bruer, J. T. (1993). Schools for thought: A science of learning in the classroom. Cambridge, MA: MIT Press.
- Bruner, J. S. (1990). Acts of meaning. Cambridge, MA: Harvard University Press.
- Butler, O. E. (1979). Kindred. Boston: Beacon Press.
- Carretero, M., & Voss, J. F. (Ed.). (1994). Cognitive and instructional processes in history and the social sciences. Hillsdale, NJ: Erlbaum Associates.
- Cronon, W. (1992). A place for stories: Nature, history, and narrative. *Journal of American History*, 78, 1347-76.
- Dodge, B. (1995). Some thoughts about WebQuests.

 http://edweb.sdsu.edu/courses/edtec596/about_webquests.html (accessed 7/30/01)
- Gibson, J. J. (1986). *The ecological approach to visual perception*. Hillsdale, NJ: Erlbaum.
- Harel, I., & Papert, S. (1993). Software design as a learning environment. *Interactive Learning Environments*, 1, 1-32.

Henson, J.

- Holt, T. (1990). *Thinking historically: Narrative, imagination, and understanding*. New York: College Entrance Examination Board.
- Hooper, P. K. (1996). "They have their own thoughts": A story of constructionist learning in an alternative African-centered community school. In Y. Kafai, & Resnick, M.



- (Ed.), Constructionism in practice: Designing, thinking, and learning in a digital world (pp. 241-254). Mahwah, NJ: Lawrence Erlbaum Associates.
- Katz, S., Lesgold, A., Eggan, G., & Gordin, M. (1993). Modeling the student in Sherlock II. *Journal of Artificial Intelligence in Education*, 3, 495-518.
- Levstik, L., & Barton, K. (1997). Doing history: Investigating with children in elementary and middle schools. Mahwah, NJ: Lawrence Erlbaum Associates.
- Norman, D. (1988). The design of everyday things. New York: Basic Books.
- Parker, J. P. The autobiography of John P. Parker.
- Polman, J. L. (2000). Designing project-based science: Connecting learners through guided inquiry. New York: Teachers College Press.
- Polman, J. L. (2001). Historical learning and identity development on the borders of school. In S. Mosborg (Chair), *History, identity, and construction of the self*. Symposium conducted at the annual meeting of the American Educational Research Association, Seattle, WA, April 2001.
- Spoehr, K. T. (1994). Enhancing the acquisition of conceptual structures through hypermedia. In K. McGilly (Ed.), *Classroom lessons: Integrating cognitive theory and classroom practice* (pp. 75-101). Cambridge, MA: MIT Press.
- Stowe, H. B. Uncle Tom's Cabin.
- Wertsch, J. V. (1998). Mind as action. New York: Oxford University Press.
- Wineburg, S. (1999). Historical thinking and other unnatural acts. *Phi Delta Kappan*, 80(7), 488-499.
- Wineburg, S. (2001). Historical thinking and other unnatural acts: Charting the future of teaching the past. Philadelphia: Temple University Press.



Appendix A: Screens (web pages) made by and source materials used by participants

Product	Source materials
You are a slave trying to escape from Missouri to the North choose how you would like to escape on foot, by train, by disguise, by wagon [by disguise leads to] Congratulations! You have made it to Michigan without getting caught. Do you want to stay here and risk being caught by bounty hunters and returned to slavery under the Fugitive Slave Law? or Do you want to continue to Canada?	"Disguises" folder - www.nps.gov/undergroundr/history.htm (secondary summary of UGRR history) - "William and Ellen Craft" section from William Still's Undergound Railroad, including a secondary account, as well as primary sources such as letters and newspaper stories - "Maria Weems" section from William Still's Undergound Railroad, including a secondary account, as well as primary sources such as letters and newspaper stories
[on foot leads to] RIVER CROSSING What time of year is it? Spring & Summer Fall & Winter	"River Crossing" folder - The Autobiography of John P. Parker (he crossed the Ohio River) - 1997 newper story about slaves' river crossing from Missouri to
Spring & Summer How do you want to cross the river? <u>Swimming Find a boat</u>	Portion of Autobiography of the Reverend Josiah Henson, retelling
Swimming Be careful about leeches, water snakes, bounty hunters, and water currents Press here to start	the Kenninscences of Levi Coffin - Portion of Harriet Beecher Stowe's Uncle Tom's Cabin
Find a boat You'll need to look around and find a boat to use or make a raft. Find something to use as a paddle, without getting caught by a slave catcher Press here to start	
Fall & Winter Find a boat or cross on the ice? Cross on the ice Be careful not to get frostbite. Jump from the poieces of ice to pieces of ice. Get across safely. Press here to continue.	



LEARNING HISTORY BY BUILDING SIMULATIONS 21

Product	Source materials
[find a boat leads to]	"Boat Travel" folder
BOAT TRAVEL Do you want to go all the way up the Mississippi River? OR	Library books, the Internet
Do you want to go a ways up the Mississippi then through the Osage River?	
[up the Mississippi leads to] You've reached Wisconsin & slave catchers have found out you're aboard the boat.	
Do you want to hide on the lower deck?	
[the Osage leads to] You've reached Michigan & you're not sure how von'll get through customs. You must wear a discusse	
click on the word "disguise" to go to the disguise page	
You've reached Colorado, but you've run out of food.	
Do you want to: search for food? OR	
steal a wagon & ride to a safe house? click on the question for that choice	
[bounty hunters catching you leads to] This is a picture of slave catchers	"Slave catchers/Bounty hunters, rewards and ads" folder
	- Portion of Narrative of William Wells Brown
back for 3. Tou have been caught you're not going anywhere. Do you want ify to escape?	 Newspaper reward advertisement from William Still's Underground Railroad
	www.nps.gov/undergroundrr/history.htm (secondary summary of
	UGRR history)
	 Advertisements from Steal Away: Stories of the Runaway Staves, edited by Abraham Chanman
[various paths lead to the North Star page, with a clickable image] You have	"The North Star" folder
reached a town. You can either	- Portion of Narrative of William Wells Brown
1) Follow the North Star, or 2) Take the road (left) or 3) Go right. Click	- www.nps.gov/undergroundrr/history.htm (secondary summary of
on the area in the picture where you want to go. Before choosing, you	UCKR history) - Lyrics to "Follow the Drinkin" Gourd"
may want to find out about the North Star.	
[various paths lead to images of two houses, one of which contains a lawn jockey and is safe] You have reached an area where there is a safe house	"Safe houses" folder - 1997 Newspaper story from St. Louis Post-Disparch on UGRR fours
Which is it? (click on your choice)	- www.nps.gov/undergroundrr/history.htm (secondary summary of UGRR
	history)



LEARNING HISTORY BY BUILDING SIMULATIONS

Product	Source materials
[searching for food] You are avoiding the slave catcher!	"Hiding/Shelter/Food" folder
You can eat a bear	 Portions of the Hippocrene Guide to the
You can eat turkey	Underground Railroad (secondary summary)
You can eat a wild boar	- First person account of the Reverend W. M. Mitchell
You can hide under a bush	from Steal Away: Stories of the Runaway Slaves,
You can eat berries	edited by Abraham Chapman
You can eat a deer	- Secondary account of William Wells Brown in My
You can eat a <u>buffalo</u>	Chains Fell Off: William Wells Brown, Fugitive
If you eat a bear	Abolitionist, by L. H. Whelchel, Jr. (1985, New York, Lanham)
You survive and escape to Canada. The bear was so big. The meat lasted three	
weeks. It tasted good. I gave the meat out to other escaping slaves and helped them	
Survive.	
You can eat a turkey	
You survive and continue on your journey. You didn't have enough to give to other	
slaves. They all die. You lose your family and friends but you survive.	
Click here to continue	
The boar was so delicious. It tasted like chicken. I enjoyed it and gave lots of boar	
out to my family and friends and everyone made it through Illinois.	
Click here to continue	
If you hide under a bush	
You couldn't find food and you starve to death. Your life is over. Sorry Charlie.	
If you eat berries	
The berries are poisonous so you die. But your family and friends survive and go on	
to have a prosperous life in Minnesota.	
If you eat a deer	
You survive and have enough meat to feed your family and friends. But you are	
about to cross into Canada when a slave catcher grabs you and your family.	
Click here to continue	
If you eat a buffalo	
You get so much meat that you survive and escape to Canada. You also save your	
family and friends with the excess meat. Wonderful!	
Click here to continue	





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